

IN THE CLAIMS:

1-47. (cancelled)

48. (previously presented) A method to generate a print image on a carrier material, comprising the steps of:

providing a surface of the print carrier with an SiO_2 layer and a hydrophilic layer with a molecular layer thickness and comprising SiOH molecules via hot water vapor;

in a structuring process, generating hydrophilic regions and hydrophobic regions corresponding to a structure of the print image to be printed;

at the surface of the print carrier, applying a fountain solution layer whereby the fountain solution layer forms only on the hydrophilic regions such that ink-attracting regions and ink-repelling regions are created corresponding to the structuring;

applying on the surface ink that adheres to the ink-attracting regions and that is not absorbed by the ink-repelling regions;

transferring the applied ink onto the carrier material; and

before a new structuring process, cleaning the surface of the print carrier and regenerating a hydrophilic layer.

49. (previously presented) A method according to claim 48 wherein the hydrophilic layer on the surface of the print carrier has a thickness of less than 100 nm.

50. (previously presented) A method according to claim 48 wherein the cleaning and the regeneration of the hydrophilic layer occurs in a single process step.

51. (previously presented) A method according to claim 50 wherein at least one of hot water and water vapor is used for the cleaning.

52. (previously presented) A method according to claim 48 wherein radiation is used for the structuring.

53. (previously presented) A method according to claim 52 wherein the radiation of at least one of a laser system, a laser, laser diodes, LEDs and a laser diode array is used.

54. (previously presented) A method according to claim 48 wherein an ink separation occurs before the transfer of the ink onto the carrier material.

55. (previously presented) A method according to claim 48 wherein the surface of the print carrier is one of a generated cylinder surface and a continuous band.

56. (previously presented) A device to generate a print image on a carrier material, comprising:

a pre-treatment station with which an SiO_2 layer and a hydrophilic layer with a molecular layer thickness is generated on a surface of a print carrier usable for printing;

an image generation station which, in a structuring process, generates hydrophilic regions and hydrophobic regions corresponding to a structure of the print image to be printed;

an application station which applies a fountain solution layer on the surface of the print carrier whereby the fountain solution layer forms only on the hydrophilic regions such that ink-attracting regions and ink-repelling regions are created corresponding to the print image structure;

an inking station which applies on the surface ink that adheres to the ink-attracting regions and which is not absorbed by the ink-repelling regions;

a transfer station at which the applied ink is transferred onto the carrier material; and

a cleaning station which cleans the surface of the print carrier before a new structure process.

57. (previously presented) A device according to claim 56 wherein the hydrophilic layer on the surface of the print carrier has a thickness of less than 100 nm.

58. (previously presented) A device according to claim 56 wherein the cleaning and the a regeneration of the hydrophilic layer occurs in a single process step.

59. (previously presented) A device according to claim 56 wherein radiation is used for the structuring.

60. (previously presented) A device according to claim 59 wherein the radiation of at least one of a laser system, a laser, laser diodes, LEDs and a laser diode array is used.

61. (previously presented) A device according to claim 56 wherein an ink separation occurs before the transfer of the ink onto the carrier material.

62. (previously presented) A device according to claim 56 wherein the surface of the print carrier is one of a generated cylinder surface and a continuous band.

63-64. (cancelled)

65. (previously presented) A method to generate a print image on a carrier material, comprising the steps of:

providing a surface of the print carrier with an SiO_2 layer and a hydrophilic layer comprising SiOH molecules via hot water vapor;

in a structuring process, generating hydrophilic regions and hydrophobic regions corresponding to a structure of the print image to be printed;

at the surface of the print carrier, applying a fountain solution layer whereby the fountain solution layer forms only on the hydrophilic regions such that ink-attracting regions and ink-repelling regions are created corresponding to the structuring;

applying on the surface ink that adheres to the ink-attracting regions and that is not absorbed by the ink-repelling regions;

transferring the applied ink onto the carrier material; and

before a new structuring process, cleaning the surface of the print carrier.

66. (previously presented) A device to generate a print image on a carrier material, comprising:

a pre-treatment station with which an SiO_2 layer and a hydrophilic layer is generated via a hot water vapor on a surface of a print carrier usable for printing;

an image generation station which, in a structuring process, generates hydrophilic regions and hydrophobic regions corresponding to a structure of the print image to be printed;

an application station which applies a fountain solution layer on the surface of the print carrier whereby the fountain solution layer forms on the hydrophilic regions such that ink-attracting regions and ink-repelling regions are created corresponding to the print image structure;

an inking station which applies on the surface ink that adheres to the ink-attracting regions and which is not absorbed by the ink-repelling regions;

a transfer station at which the applied ink is transferred onto the carrier material; and

a cleaning station which cleans the surface of the print carrier.

67. (new) A method to generate a print image on a carrier material, comprising the steps of:

providing a print carrier with a SiO_2 coating on its surface;

charging the SiO_2 coating at the print carrier surface with a water vapor and then drying the surface to form a SiOH hydrophilic molecule structure layer;

in a structuring process generating what will layer become ink-attracting regions and ink-repelling regions via structuring of the molecule structure layer corresponding to a structure of the print image to be printed, and wherein to structure the molecule structure layer, directing radiation of a light source via a control element per image pointy onto the molecule structure layer dependent on a control signal;

applying a fountain solution layer on the print carrier to create said ink-attracting and ink-repelling regions; and

transferring the applied ink onto the carrier material.

68. (new) A device to generate a print image on a carrier material, comprising:

a print carrier with a SiO_2 coating on its surface;

with a vapor station, charging the SiO_2 coating at the print carrier surface with a water vapor;

with a drying device, drying the surface to form a SiOH hydrophilic molecule structure layer;

an image generating station in which in a structuring process what will become ink-attracting regions and ink-repelling regions are generated via structuring of the molecule structure layer corresponding to a structure of the print image to be printed;


a damping station which applies a fountain solution layer on the print carrier to create said ink-attracting and ink-repelling regions;

an ink application station wherein ink that adheres to the ink-attracting regions and that is not absorbed by the ink-repelling regions is applied on the surface;

an ink transfer station wherein the applied ink is transferred onto the carrier material;

the image generating station having a light source whose radiation is directed via a control element per image point toward the surface of the print carrier; and the radiation being dependent on a control signal.

Respectfully submitted,


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